UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 73514

SAINT GERMAIN STREET (MSAS NO. 128)

OVER THE

MISSISSIPPI RIVER

DISTRICT 3 - STEARNS COUNTY, CITY OF ST. CLOUD

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 83)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 73514, Piers 1, 2 and 3, were sound and in good condition with no structurally significant defects observed. The footings of Piers 1 and 2 were partially exposed at the upstream ends with a maximum vertical face exposure of 1 foot. Three steel I-beams extended through each pier shaft at both 4 and 10 feet below the waterline. The channel bottom appeared stable with no appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) The footing at Pier 1 was exposed 5 feet across the upstream side, around the upstream nose, and for approximately 10 feet along the south side of the pier with a maximum vertical exposure of 1 foot at the upstream end.

(B) Footing exposure was present, extending approximately 6 feet across the upstream face and approximately halfway down the north face of Pier 2 with a maximum vertical face exposure of 1 foot at the upstream end.

(C) Three steel I-beams extended through each pier shaft at both 4 and 10 feet below the waterline. The steel I-beams were cut flush with the pier shaft faces and were likely used as cofferdam braces during construction.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 73514

Feature Crossed: The Mississippi River

Feature Carried: Saint Germain Street (MSAS No. 128)

Location: District 3 - Stearns County, City of St. Cloud

Bridge Description: The bridge consists of a continuous four span multiple steel girder superstructure supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The piers are numbered 1 through 3 starting from the southwest end of the bridge. The pier footings are founded on timber piles.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker

Dive Team: Clayton G. Brookins, Michelle D. Koerbel

Date: September 27, 2002

Weather Conditions: Sunny, ± 40^{o} F

Underwater Visibility: ±1.5 feet

Waterway Velocity: ±1 fps

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1, 2 and 3.

General Shape: The piers are single stem hammerheads with oblong rectangular shafts and rounded ends supported by a rectangular footing/seal combination founded on timber piles.

Maximum Water Depth at Substructure Inspected: Approximately 16.5 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of Pier 2.

Water Surface: The waterline was approximately 45.5 feet below reference. Waterline Elevation = 979.3.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

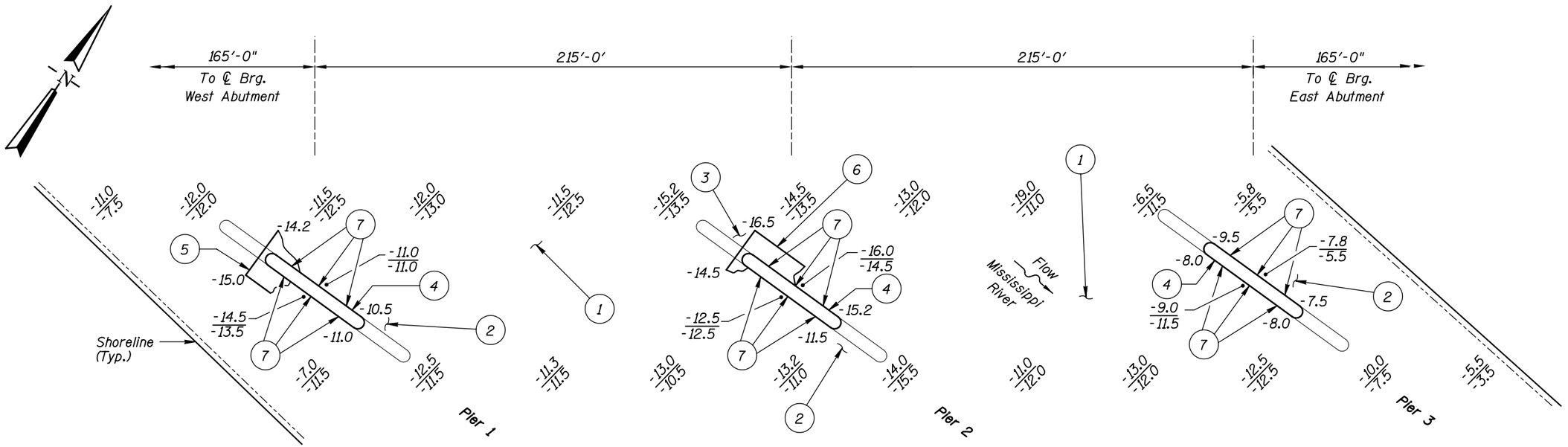
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/9/02

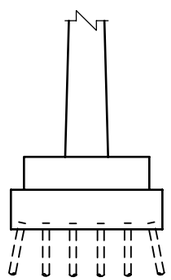
Item 113: Scour Critical Bridges: Code N/92

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes __X__ No



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

INSPECTION NOTES:

1. The channel bottom material consisted of sand and small diameter rock with a maximum probe rod penetration of 3 inches.
2. The channel bottom material consisted of 12-to 18-inch-diameter riprap with sand infilling and no probe rod penetration.
3. The channel bottom material consisted of 1-foot-diameter riprap with sand and gravel infilling and up to 4 inches of probe rod penetration.
4. Light scaling with a maximum penetration of 1/8 inch was observed on all piers from 1 foot above to 1 foot below the waterline.
5. Footing exposure was detected, extending 5 feet across the upstream face, around the nose, and for approximately 10 feet along the south side of the pier face with a maximum vertical face exposure of 1 foot at the upstream end.
6. Footing exposure was detected, extending approximately 6 feet across the upstream face and approximately halfway down the north face of the pier with a maximum vertical face exposure of 1 foot at the upstream end.
7. Steel I-beams were observed extending through the pier and cut flush with the pier shaft faces at 4 feet and 10 feet below the waterline.

GENERAL NOTES:

1. Piers 1 through 3 were inspected underwater.
2. At the time of inspection on September 27, 2002, the waterline was located approximately 45.5 feet below the top of the pier cap at the downstream end of Pier 2. This corresponds to a waterline elevation of 979.3 based on the previous report dated September 11, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

Legend

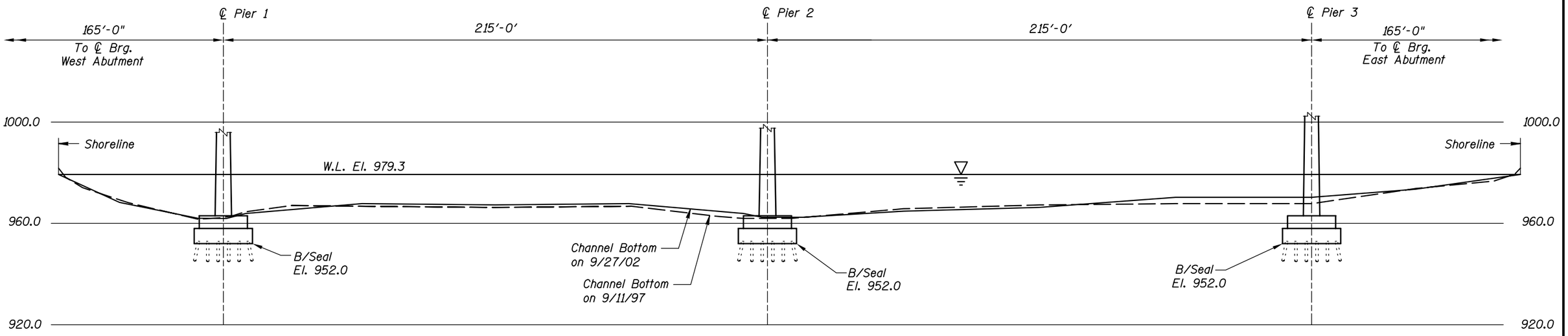
-12.0	Sounding Depth from Waterline (9/27/02)
-13.0	Sounding Depth from Waterline (9/11/97)

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

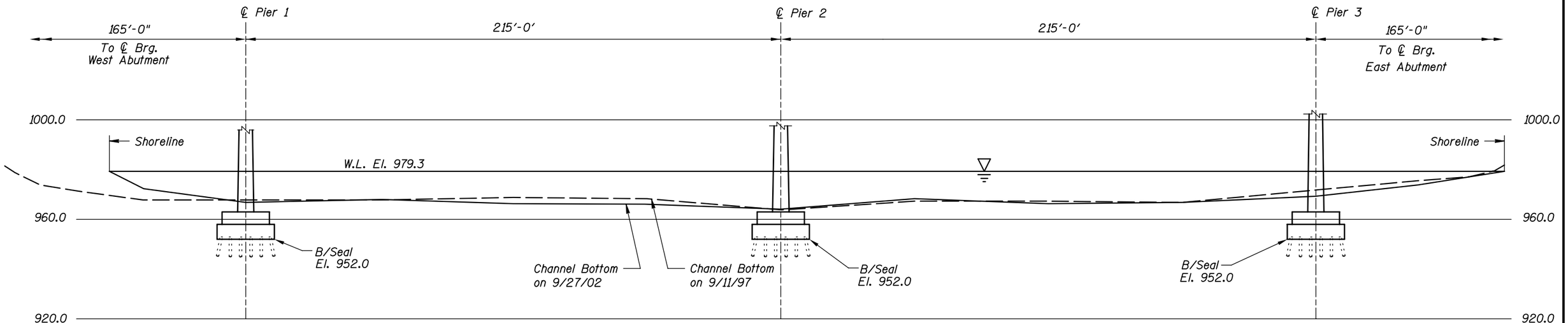
STRUCTURE NO. 73514
OVER THE MISSISSIPPI RIVER
DISTRICT 3, STEARNS COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120083		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UNDERWATER BRIDGE INSPECTION

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OVER THE MISSISSIPPI RIVER
DISTRICT 3, STEARNS COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=40'
Code: 35120083		Figure No.: 2

Photograph 1. Overall View of Piers 1 and 2, Looking South.

Photograph 2. View of Pier 3, Looking North.

Photograph 3. Close up View of Typical Light Scaling Mid Section of Pier 3 at the Waterline, Looking South.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 27, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 73514 WEATHER: Sunny, "40° F
WATERWAY CROSSED: The Mississippi River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Clayton G. Brookins, Michelle D. Koerbel
EQUIPMENT: Scuba, U/W Light, Scraper, Sounding Pole, Lead Line, Probe Rod, Camera
TIME IN WATER: 8:30 A.M.
TIME OUT OF WATER: 10:15 A.M.
WATERWAY DATA: VELOCITY " 1 fps
VISIBILITY " 1.5 feet
DEPTH 16.5 feet maximum at Pier 2
ELEMENTS INSPECTED: Piers 1, 2 and 3
REMARKS: The concrete of the piers was sound and in good condition with no structurally significant defects observed. Partial footing exposure was observed at the upstream ends of Piers 1 and 2 with a maximum vertical face exposure of 1 foot. Three steel I-beams extended through each pier shaft at both 4 and 10 feet below the waterline. The channel bottom appeared stable with no appreciable changes observed since the previous inspection.

FURTHER ACTION NEEDED: _____ YES __X_____ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 73514
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Mississippi River

INSPECTION DATE September 27, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER (BRACING)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	15.0’	N	7	7	9	N	7	6	N	N	N	6	7	N	N	7	N	N
	Pier 2	16.5’	N	7	7	9	N	7	6	N	N	N	6	7	N	N	7	N	N
	Pier 3	10.0’	N	7	N	9	N	7	7	N	N	N	7	7	N	N	7	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete of the piers was sound and in good condition with no structurally significant defects observed. Partial footing exposure was observed at the upstream ends of Piers 1 and 2 with a maximum vertical face exposure of 1 foot. Three steel I-beams extended through each pier shaft at both 4 and 10 feet below the waterline. The channel bottom appeared stable with no appreciable changes observed since the previous inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.